

### REMARKS

This responds to the Office Action dated October 19, 2006, and the references cited therewith.

Claims 1, 2, 7, 8, 12-15, 19-21, 30, 35, 39-42, 54, 56, 58, 59, 61, 67, 70, 121, 132, 141, 143, 144, 145, 147-149, 164, 166, 167, 184, 186 and 191 are amended, claims 9, 36-38, 60, 127-131, 137, 138, 142, 143, 146, 147, 148, 149, 152, 153, 166-168, 184, 185, 188, 189, 190 and 192-195 are canceled, and no claims are added; as a result, claims 1-8, 10-22, 30, 31, 35, 39-59, 61, 62, 67-70, 121, 122, 132, 133, 139, 141, 143-145, 147-151, 160, 161, 164-168, 184, 186, 187 and 191 are now pending in this application.

### Specification and Claim Amendments

Amendments to the footnotes of Tables 3 and 7, as well as to claims 1, 2, 13-15, 21, 30, 35, 40, 41, 54, 56, 61, 67, 69, 70, 1414, 144, 145, 148, 149, 164, 166 and 167 have been introduced to clarify the use of “weight percent” as defined in specification paragraph [0022]. The amendments are supported by the specification.

### Claim Objections

Claim 36 was objected to on the grounds that the term “extenders” has antecedent basis and should be read as “the extenders.” Claim 36 has been canceled.

Claim 40 was objected to on the grounds that the scope of the claim was outside independent claim 35 which requires the extenders to be mandatory. The open-ended range of up to 99 wt% wherein extenders can be optional was objected to. Claim 40 has been amended and the objection is believed to be obviated.

Claims 42 and 147 were objected to on the grounds that in order to have full antecedent basis, the phrase “at least one of” should be inserted before “the rare earth compound[s]” at the end of line 1 of the claim. Claims 42 and 147 have been amended and the objections are believed to be obviated.

Double Patenting Rejection

Claims 1-7, 15, 17, 35, 42-45, 70 and 151 were provisionally rejected under a non-statutory double patenting rejection, specifically over claims 39-41 of copending Application No. 10/758,973 (published as US 2004/0186201). Applicant does not admit that the claims are obvious in view of copending Application No. 10/758,973 (published as US 2004/0186201). However, if the copending application is allowed, a Terminal Disclaimer will be filed at that time to obviate these rejections.

§112 Rejection of the Claims

Claims 1-7, 10, 11, 13-22, 30, 31, 40, 67-69, 127-131, 141-146, 164-168, 184-188, 192, 194 and 195 were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The claims have been amended to remove the open-ended ranges rejected by the Examiner. All claim amendments are supported by the specification.

Claims 8, 9, 12, 132, 141, 142 and 191 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims have been amended to correct the antecedent basis rejection.

§102 Rejection of the Claims

Claims 1, 7, 10, 11, 13, 14, 17, 19, 56-58, 60, 141-146, 164-166, 189, 190, 194 and 195 were rejected under 35 U.S.C. § 102(b) for anticipation by Takeuchi et al. (JP 05-117589).

Independent claims 1, 56 and 164 have all been amended to include the use of an organic binder. As defined in the specification, organic binders have a carbon backbone (Specification, page 7). The Takeuchi reference describes heat resistant coatings built on resins with non-organic backbones, such as silane, titanium and boron (Takeuchi [008]). Because the reference does not disclose the use of an organic binder, the reference does not anticipate independent claims 1, 56, 164 and the claims that depend from them.

Further, the Office has not rejected independent Claims 1, 56, and 164 as non-obvious over Takeuchi. However, for the sake of completeness, Applicants submit that these claims, and their dependent claims are non-obvious over Takeuchi.

As detailed above, Takeuchi does not teach the use of an organic binder and as such, does not teach all the claimed elements. In addition, Takeuchi does not provide a motivation to modify or combine the reference teachings, and reading Takeuchi, one would have no reasonable expectation of success. Specifically, Takeuchi discloses only one species of praseodymium oxide,  $\text{Pr}_6\text{O}_{11}$ , in a laundry list of “inorganic fillers”. There is no specific example of any praseodymium oxide in a coating, and no teaching that the listed inorganic fillers impart any corrosion resistance to the coatings, the recited utility of Applicants’ claimed compositions. In reviewing the two embodiments (Embodiments 1 and 2, par. [0013-0016, Table 1]) that are disclosed in Takeuchi, it is also clear that these specific examples do not provide motivation to modify or combine the references, or give a reasonable expectation of success. The coatings are disclosed as forming a heat resistant film. Although the description states that the composition “greatly improves the anti-corrosion capacity of the base material” (par. titled [Effect]), Table 1 clearly states that Embodiments 1 and 2, although showing “good” heat resistance, show “rust” when exposed to a salt water spray resistance test, the standard in the industry for testing corrosion resistance. Thus, Takeuchi provides neither suggestion nor motivation to combine to arrive at Applicants’ invention and based on the showing that Takeuchi’s compositions show rust in a salt water spray resistance test, there is no reasonable expectation of success. Accordingly, the claims are non-obvious over Takeuchi.

### §103 Rejection of the Claims

In order for the Examiner to establish a *prima facie* case of obviousness, three base criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on

applicant's disclosure. M.P.E.P. § 2142 (citing *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed.Cir. 1991)).

Claims 2, 3, 67, 68 and 150 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Takeuchi et al. (JP 05-117589).

The reference must teach or suggest all the claim elements. The Examiner explicitly states that the reference does not disclose all the elements of the above claims. If all the claim elements are not present, the Examiner has not established a *prima facie* case of obviousness. If Examiner is taking official notice of the missing elements, Applicant respectfully traverses this official notice and requests that the Examiner provide a reference that describes such elements. Absent a reference, it appears that the Examiner is using personal knowledge, so the Examiner is respectfully requested to submit an affidavit as required by 37 C.F.R. § 1.104(d)(2).

Further, the Examiner states that "with respect to the mixture (claims 2, 3, 67 68, and 150), given that Takeuchi et al discloses mixtures of inorganic bulking agents . . ." (Office Action, page 5). Contrary to this assertion, Takeuchi does not disclose mixtures of inorganic bulking agents. Takeuchi states "As inorganic fillers, for example, . . . La2O3 . . . Pr6O11 . . . and moreover, coloring pigments based on composite oxides of multiple metals and the like are exemplified, and these can be used singly or mixed." Takeuchi discloses mixing coloring pigments and not two inorganic bulking agents. Thus, Takeuchi does not provide motivation to modify the invention to arrive at Applicants claimed mixture of two rare earth compounds.

Claims 1-20, 30, 31, 35-38, 40-52, 54-59, 61, 62, 67-70, 121, 122, 127-129, 131-133, 137-139, 141-152, 160, 161, 164-168, 184, 188 and 192 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Shoji et al. (U.S. Patent No. 6,190,780).

The Examiner rejected the claims based on Shoji only. Applicant respectfully traverses the single reference rejection under 35 U.S.C. § 103 since not all of the recited elements of the claims are found in Shoji. Since all the elements of the claim are not found in the reference, Applicant assumes that the Examiner is taking official notice of the missing elements. Applicant respectfully objects to the taking of official notice with a single reference obviousness rejection and, pursuant to M.P.E.P. § 2144.03, Applicant respectfully traverses the assertion of Official Notice and requests that the Examiner cite references in support of this position.

In further detail, Examiner has not established a *prima facie* case of obviousness as Shoji does not teach or suggest all the claim elements, nor is there a suggestion or motivation to combine the elements found in the reference.

Independent Claim 1

Although Shoji describes the use of rare earth oxyacid compounds as corrosion inhibiting coatings, the reference does not disclose about 1% to about 90% praseodymium oxide in combination with an organic binder. In fact, Applicants have not found any portion of Shoji that explicitly discloses praseodymium in any form. Shoji describes the use of a reaction product between an oxyacid and a rare earth compound.

There is no motivation or suggestion to use about 1% to about 90% praseodymium oxide in combination with an organic binder. Shoji teaches away from the combination in that its corrosion coating requires the use of an oxyacid rare earth compound. Rare earth oxides are not the same as a reaction product between an oxyacid and a rare earth compound. Further, when mentioned, the Shoji reference instructs not to include more than 5 times the molar amount of a rare earth oxide as the rare earth oxyacid that is present, in a preferred embodiment. This limitation teaches away from the higher content of praseodymium oxide possible as described in present Claim 1. Further, the Shoji reference describes coatings for an inorganic metal treatment and not for an organic coating. The focus of the Shoji reference is the corrosion fighting characteristics of the rare earth oxyacid and not of any rare earth oxides. Even if the elements of the claim were to be found in Shoji, there is no motivation to combine them.

Independent Claim 35

Shoji does not describe the combination of calcium sulfate or strontium sulfate with rare earth compounds and binders. Not only is calcium sulfate or strontium sulfate not found in the disclosure (not all elements are described), but there is no teaching of the use of such extenders to enhance the corrosion inhibiting abilities of the rare earth compounds and binders. Accordingly, the Office has not established a *prima facie* case of obviousness, and Shoji does not provide motivation to modify or combine to arrive at Applicants' invention.

Applicants do not concede that the Office has established a *prima facie* case of obviousness. However, inasmuch as a *prima facie* case of obviousness may exist, Applicants

submit that the superior results of Applicants claimed compositions, as described in the Specification, rebut any such prima facie case. For example, Table 3 of the Specification discloses compositions having various rare earth compounds and either  $\text{CaSO}_4$  or  $\text{SrSO}_4$ . All the compositions having  $\text{CaSO}_4$  or  $\text{SrSO}_4$  extenders that were tested have an "A" 2000 hr salt fog rating (i.e., no corrosion creepage beyond scribe) and generally no incident of rust in the scribe line after surface scribing and a 2000 hr salt fog test. In contrast, the majority of samples tested in Shoji have a "Worked Corrosion Resistance Test" incidence of rust (See, Shoji, col. 26, Tables 5-16). Clearly, Applicants have demonstrated superior corrosion resistance by their experimental results, as disclosed in the Application, and these results must be considered in determining the non-obviousness of Applicants invention over Shoji.

Independent Claim 56

Shoji does not disclose between about 1% to about 90 % of a praseodymium (III/IV) mixed oxide and one or more organic binders. Applicant incorporates by reference the relevant arguments asserted above in association with Claim 1 with respect to the lack of motivation and absence of all claim elements.

Independent Claim 67

Shoji does not disclose about 1% to about 90% of a praseodymium oxide, one or more binders and one or more rare earth oxides. Applicant incorporates by reference the relevant arguments asserted above in association with Claim 1 with respect to the lack of motivation and absence of all claim elements.

Independent Claim 70

Shoji does not describe the combination of calcium sulfate or strontium sulfate with rare earth oxides and binders. Applicant incorporates by reference the relevant arguments asserted above in association with Claim 35 with respect to the lack of motivation and absence of all claim elements.

Independent Claim 121

Claim 121 describes a method for preparing a coating composition in which a paint formulation is formed and an effective amount of a rare earth compound and one or more extenders, such as calcium sulfate and strontium sulfate, are added. Shoji does not describe the combination of calcium sulfate or strontium sulfate with rare earth compounds to form a coating composition.

Further, the methods of Shoji teach away from the present invention in that they require a high temperature reaction of rare earth compounds and phosphoric acid to produce a rare earth oxyacid as an active corrosion inhibitor. The methods of the present invention do not undergo heat treatment.

#### Independent Claim 164

Claim 164 describes a method for preparing a coating composition in which a paint formulation is formed comprising an organic binder and an effective amount of about 1% to about 90% of a praseodymium compound is added. Applicant incorporates by reference the relevant arguments asserted above in association with Claim 121 with respect to the lack of motivation and absence of all claim elements.

#### Teaching Away from the Coating System and No Reasonable Expectation of Success

The Shoji reference teaches away from the combinations of the present invention. Further, the reference provides no reasonable expectation of success. Shoji (column 12, lines 44-51) teaches that any solubility of the rare earth compound above 0.01 mol/l in the pH range of 5-8, and preferably pH 6-7, jeopardizes the coating's long-term corrosion resistance. The reference further states that if the solubility crosses such threshold, the rare earth metal element compound will easily elute out from the film in moist environments such as rain and dew, thus lowering the long-term corrosion resistance in such moist environments.

The embodiments of the present invention provide corrosion inhibiting compositions that can intentionally generate a local pH of about 4 to about 8. Any rare earth compound would then be solubilized to enhance and optimize transport of the particular inhibitor species being used, from the composition to areas of exposed underlying substrate.

### Secondary Factors

In the case that the Examiner supports a *prima facie* case for obviousness, the embodiments of the present invention rebut such arguments by showing surprising and unexpected results. Table 3 of the Specification displays superior results using the combinations of the claim elements over the prior art.

Claims 21 and 22 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Shoji et al. (U.S. Patent No. 6,190,780) in view of Oakes (U.S. Patent No. 4,370,256).

Claims 39, 130, 153, 186 and 187 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Shoji et al. (U.S. Patent No. 6,190,780) in view of Reuter et al. (U.S. Patent Application Publication No. 2003/0082368).

Claims 53, 60, 189, 190, 194 and 195 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Shoji et al. (U.S. Patent No. 6,190,780) in view of Tucker (U.S. Patent No. 3,837,894).

Claims 191 and 193 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Shoji et al. (U.S. Patent No. 6,190,780) in view of Keofod (U.S. Patent No. 5,531,931).

The remaining claims depend, directly or indirectly, on claims 1, 35, 56, 67, 70, 121 and 164, respectively, and are patentable over Shoji for the reasons argued above, and are also patentable in view of the additional elements which they provide to the patentable combination. If an independent claim is nonobvious under 35 U.S.C. § 103, then any claim depending therefrom is also nonobvious. MPEP § 2143.03.



**CONCLUSION**

Applicant respectfully submits that the claims are in condition for allowance, and notification to that effect is earnestly requested. The Examiner is invited and encouraged to telephone Applicant's attorney at 612-373-6920 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

JAMES STOFFER ET AL.

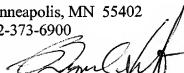
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